REMARKS

Claims 2, 5, and 18 have been canceled. Claims 1, 3, 4, 8 through 13, 15 through 17, and 19 have been amended. Claims 1, 3, 4, 6 through 17, and 19 remain in the application.

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by any of Locke (U.S. Patent No. 3,848,104), Vetsch et al. (U.S. Patent No. 4,459,458), or Folger et al. (U.S. Patent No. 4,879,448). Claims 6 through 10 were rejected under 35 U.S.C. § 103 as being obvious over Locke '104, Vetsch et al. '458, or Folger et al. '448. Applicants respectfully traverse both rejections.

U.S. Patent No. 3,848,104 to Locke discloses an apparatus for heat treating a surface. A laser beam 1 within a laser enclosure is focused at point 2 in an aerodynamic window 3. The focal point 2 is the primary focal point and is re-imaged by an external mirror 4 as a much larger focal point located at position 5 called the secondary focal point. A dithering beam from mirror 6 passes through an aperture 10 at the second focal point 5, and then to a second focusing mirror 11 and from that to the seep mirror 12 that relatively slowly oscillates on its axis 13 as it is driven by mechanism 14 and causes the beam to scan back and forth over an arc 15 (see FIG. 2). The sweep rate of the mirror 12 is synchronized with the movement of the workpiece 16 to which the dithered beam is directed. Locke does not disclose or suggest providing automated tooling, providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed, and supplying power to a laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other.

U.S. Patent No. 4,459,458 to Vetsch et al. discloses a machine tool with laser heat treating. A machine tool 10 includes an NC controller 12 and a laser 14 for heat treating a workpiece 20. The machine tool 10 turns the workpiece 20 to the desired shape and then after completing all turning moves a laser head 60 into position and performs desired surface heat treating on the workpiece 20. Vetsch et al. does not disclose or suggest providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed and supplying power to a laser to heat a portion of the aluminum sheet panel to a predetermined

temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other.

U.S. Patent No. 4,879,448 to Folger et al. discloses an apparatus for laser welding and annealing. A laser 101 is rigidly secured to a frame 102 in a precise position and orientation. The laser 101 is a pulsed laser that outputs a focused laser beam 103. Once printer bands are secured to a fixture table 104 as illustrated in FIG. 1, the laser welding operation is initiated. The activation of the laser 101 produces the laser beam 103 which produces a spot of laser light on the top surface of one of printer bands 121, 122 along the center line 150 of fixture table 104. The illumination of this site on the printer band 121 for example generates a significant amount of heat, elevating the temperature of the ends of the printer band to a temperature sufficient to cause the juxtaposed ends of the printer band to be welded together. The beam of laser light 103 is applied to the printer band for a sufficient duration of time to complete the welding process and y axis positioning motor 110 is activated by a control circuit (not shown) to move the fixture table 104 in a negative y axis direction to weld across the narrow dimension of the printer band 121 in the y axis direction. Folger et al. does not disclose or suggest providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed and supplying power to a laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a method for laser annealing a part including the steps of providing automated tooling, providing a laser, and providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed. The method also includes the steps of moving either one of the laser or aluminum sheet panel by the automated tooling relative to a stationary one of the other laser or aluminum sheet panel. The method further includes the steps of supplying power to the laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other.

A rejection grounded on anticipation under 35 U.S.C. § 102 is proper only where the subject matter claimed is identically disclosed or described in a reference. In other words, anticipation requires the presence of a single prior art reference which discloses each and every element of the claimed invention arranged as in the claim. In re Arkley, 455 F.2d 586, 172 U.S.P.Q. 524 (C.C.P.A. 1972); Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983); Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 U.S.P.Q. 481 (Fed. Cir. 1984).

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that "[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) ("In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.")

None of the references cited disclose or teach the claimed invention of claim 1. Specifically, Locke '104 merely discloses an apparatus for heat treating a surface in which a laser beam scans back and forth with the movement of a workpiece. Locke '104 lacks providing automated tooling, providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed, and supplying power to a laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum

sheet panel as the laser and aluminum sheet panel move relative to each other. In Locke '104, there is no aluminum sheet panel or annealing of the aluminum sheet panel with a laser.

Vetsch et al. '458 merely discloses a machine tool with laser heat treating in which the machine tool turns the workpiece to the desired shape and then after completing all turning moves a laser head into position and performs desired surface heat treating on the workpiece. Vetsch et al. '458 lacks providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed and supplying power to a laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other. In Vetsch et al. '458, there is no aluminum sheet panel

Folger et al. '448 merely discloses an apparatus for laser welding and annealing in which activation of a laser produces a laser beam which produces a spot of laser light on a top surface of one of printer bands. Folger et al. '448 lacks providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed and supplying power to a laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other. In Folger et al. '448, the laser 101 produces a laser beam 103 which produces a spot of laser light on the top surface of one of printer bands 121, 122 to generate a significant amount of heat, elevating the temperature of the ends of the printer band to a temperature sufficient to cause the juxtaposed ends of the printer band to be welded together.

Each of the references, either alone or in combination, fails to disclose or suggest the combination of a method for laser annealing a part including the steps of providing automated tooling, providing a laser, providing an aluminum sheet panel having an upstanding flange with a radial bend therebetween to be annealed, moving either one of the laser or aluminum sheet panel by the automated tooling relative to a stationary one of the other laser or aluminum sheet panel, and supplying power to the laser to heat a portion of the aluminum sheet panel to a predetermined temperature to anneal the portion of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other as claimed by Applicants. Therefore, it is

respectfully submitted that claim 1 and the claims dependent therefrom are allowable over the rejections under 35 U.S.C. § 102 and 103.

Claims 2 through 5 and 11 through 19 were rejected under 35 U.S.C. § 103 as being unpatentable over Locke '104, Vetsch et al. '458, or Folger et al. '448, any one of which in view of SU Abstract 1806884. Applicants respectfully traverse this rejection.

SU Abstract 1806884 discloses components produced from profiled metal sections – where a flange of a blank is subjected to annealing by a laser beam over its whole thickness. The profile comprising a flange and at least one wall of thermally strengthened material is obtained by creating an unevenness of distribution of the properties of the material around the section of the profile by thermal treatment of the flange and subsequent bending. The distribution unevenness is created by annealing the flange of the blank over its whole thickness by a laser beam which is moved perpendicularly to the line of bend. SU '884 does not disclose or suggest providing a robot having a movable arm, providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed, and moving either one of the laser or aluminum sheet panel by the movable arm of the robot relative to a stationary one of the other laser or aluminum sheet panel.

In contradistinction, claim 11, as amended, clarifies the invention claimed as a method for laser annealing a part including the steps of providing a robot having a movable arm, providing a laser, and providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed. The method includes the steps of moving either one of the laser or aluminum sheet panel by the movable arm of the robot relative to a stationary one of the other laser or aluminum sheet panel. The method further includes the steps of supplying power to the laser to heat the radial bend of the aluminum sheet panel to a predetermined temperature to anneal the radial bend of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other. Claim 19 has been amended similar to claim 11 and includes other steps and features of the present invention.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claims 11 and 19. Specifically, Locke '104 merely discloses an apparatus for heat treating a surface in which a laser beam scans back and forth with the

movement of a workpiece. Locke '104 lacks providing a robot having a movable arm, providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed, and supplying power to a laser to heat the radial bend of the aluminum sheet panel to a predetermined temperature to anneal the radial bend of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other. In Locke '104, there is no aluminum sheet panel or annealing of the aluminum sheet panel with a laser.

Vetsch et al. '458 merely discloses a machine tool with laser heat treating in which the machine tool turns the workpiece to the desired shape and then after completing all turning moves a laser head into position and performs desired surface heat treating on the workpiece. Vetsch et al. '458 lacks providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed and supplying power to a laser to heat the radial bend of the aluminum sheet panel to a predetermined temperature to anneal the radial bend of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other. In Vetsch et al. '458, there is no aluminum sheet panel

Folger et al. '448 merely discloses an apparatus for laser welding and annealing in which activation of a laser produces a laser beam which produces a spot of laser light on the top surface of one of printer bands. Folger et al. '448 lacks providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed and supplying power to a laser to heat the radial bend of the aluminum sheet panel to a predetermined temperature to anneal the radial bend of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other. In Folger et al. '448, the laser 101 produces laser beam 103 which produces a spot of laser light on the top surface of one of printer bands 121, 122 to generate a significant amount of heat, elevating the temperature of the ends of the printer band to a temperature sufficient to cause the juxtaposed ends of the printer band to be welded together.

SU '884 merely discloses components produced from profiled metal sections, where a flange of a blank is subjected to annealing by a laser beam over its whole thickness. SU '884 lacks providing a robot having a movable arm, providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed, and moving either one of the laser or aluminum sheet panel by the movable arm of the robot relative to a stationary one of the other

laser or aluminum sheet panel. In SU '884, there is no aluminum sheet panel or a robot. As such, there is no motivation or suggestion for combining either one of Locke '104, Vetsch et al. '458, or Folger et al. '448, and SU '884 '805 together.

The present invention sets forth a unique and non-obvious combination of a method for laser annealing a part that allows laser annealing of aluminum hems in automotive closure components to enhance the bendability of the material during hemming. The references, if combinable, fail to teach or suggest the combination of a method for laser annealing a part including the steps of providing a robot having a movable arm, providing a laser, providing an aluminum sheet panel having an upstanding flange with a radial bend to be annealed, moving either one of the laser or aluminum sheet panel by the movable arm of the robot relative to a stationary one of the other laser or aluminum sheet panel, and supplying power to the laser to heat the radial bend of the aluminum sheet panel to a predetermined temperature to anneal the radial bend of the aluminum sheet panel as the laser and aluminum sheet panel move relative to each other as claimed by Applicants. Thus, the Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claims 11 and 19 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 2 through 19 are improper. Therefore, it is respectfully submitted that claims 2 through 19 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

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